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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/550,747

09/23/2005

Keiko Kawakami

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EXAMINER

CHAU, LINDA N

ART UNIT

PAPER NUMBER

4162

MAIL DATE

DELIVERY MODE

08/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/550,747	Applicant(s) KAWAKAMI ET AL.	
	Examiner LINDA CHAU	Art Unit 4162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 7-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :9/23/05; 7/3/06; 8/09/07; 6/26/08; 7/21/08.

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DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-6, drawn to an inorganic-organic hybrid film-coated stainless steel foil substrate.

Group II, claim(s) 7-17, drawn to a coated inorganic-organic hybrid film-coated stainless steel foil.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I has a special technical feature of a hybrid film comprising a crosslink oxygen of the skeleton structure being replaced by the organic group or hydrogen atom and also having a specific ratio between the hydrogen concentration and the silicon concentration, which is all not shared by the product of Group II. Group II has a special technical features of a silicon of the hybrid film is being chemically bonded to the organic group and hydrogen and also having a plurality of different composition of the hybrid films.

During a telephone conversation with John J. Kelly on 8/13/08 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-17 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tezuka et al. (JP 2000-349312) and in view of Gray et al. (US 5,595,826).

Tezuka teaches a stainless steel substrate with an insulating layer, or an inorganic-organic hybrid film. Furthermore, Tezuka teaches that the insulating layer comprises a skeleton formed with a siloxane bond [0025]-[0026]. However, Tezuka fails to mention that the crosslinked oxygen of

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the siloxane bond is being replaced by an organic group or a hydrogen group and also fails to mention the concentration ratio between the hydrogen and the silicon. Gray teaches organopolysiloxane compositions that are crosslinked with at least two silicon-bonded hydrogens (col. 2, lines 30-32). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tezuka's crosslinked oxygen of the siloxane bond, since Gray teaches that having crosslinked hydrogen in a siloxane bond would improve the adhesion to a metal substrate (col. 2, lines 23-25). Furthermore, Gray teaches that the concentration of the organohydrogenpolysiloxane is from 0.5 to 10 silicon-bonded hydrogen atoms (col. 3, lines 29-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Tezuka's siloxane possess the concentration of Gray in order to further optimize the adhesion of the hybrid film to the metal substrate.

Regarding claim 2, Gray teaches that an alkyl group is crosslinked to the silicon atoms (col. 3, lines 24-29).

Regarding claim 4, Tezuka teaches the thickness of the film is less than 5 μm , which overlaps the equation [0011]. It would have been obvious to one of ordinary skill in the art at the time of the invention to be within the range claimed by the applicants, since discovering the workable ranges involves only routine skill in the art.

Regarding claim 5, Tezuka teaches that the thickness of the substrate is 20-150 μm and that the thickness of the film is 0.1 nm - 5 μm ([0011] and [0021]). Tezuka's ranges satisfy the applicant's equation.

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Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tezuka et al. (JP 2000-349312), in view of Gray et al. (US 5,595,826), and further in view of Kamiya et al. (JP411269657)

Regarding claim 3, both Tezuka and Gray doesn't teach the average roughness of the hybrid film. Kamiya teaches an inorganic-organic hybrid functional film having a roughness of 0.5 nm or less [0033]. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tezuka's hybrid film with the roughness taught by Kamiya, since Kamiya teaches that this will provide a smooth nature of the surface, which thus optimize the electrically insulating substrate of Tezuka.

Regarding claim 6, Tezuka, Gray, and Kamiya doesn't teach the surface roughness of the stainless steel foil substrate. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tezuka's substrate with having at least 2.5 μm , so that the inorganic-organic hybrid film can easily adhere to the textured substrate. Furthermore, discovering the workable ranges involves only routine skill in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA CHAU whose telephone number is (571)270-5835. The examiner can normally be reached on Monday-Thursday, 12:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LC/

/Jennifer McNeil/
Supervisory Patent Examiner, Art Unit 4162